Factors Affecting the Results of the SPT

After Fletcher, 1965, Marcuson et al. 1977, and Schmertmann, 1977

Test Detail	Effect on N-value	Estimated Percent by Which Cause Can Change N
Inadequate cleaning of disturbed materials in the borehole	Decreases	
Failure to maintain sufficient hydrostatic head in the borehole	Decreases	100%
Variations from the exact 762 mm (30 in) drop	Either	± 10%
Length of drill rods	Increases	
< 3 m (10 ft)		50%
10 to 16 m (30 to 80 ft)		0
> 30 m (100 ft)		10%
Any interference with free fall (using 2 to 3 turns)	Increases	to 100%
Using deformed sample spoon	Increases	
Excessive driving of sample spoon before the blow count	Decreases	
Failure of driller to completely release the tension of the rope	Increases	
Driving sample spoon above the bottom of the casing	Increases	
Use of wire line rather than manila rope	Increases	
Carelessness in recording blow count	Either	
Insufficient lubrication of the sheave	Increases	
Larger size of borehole	Decreases	50%
Penetration interval		
N_0 to 12 in instead N_6 to 18 in	Decreases	15% sands 30% insensitive clays
N_{12} to 24 in versus N_6 to 18 in	Decreases	15% sands 30% insensitive clays
Use of drilling mud versus casing in water	Increases	100%
Large vs small anvil	Increases	50%
Use of A rods versus BW rods	Either	± 10%
Larger ID for liners, but no liners	Decreases	10% sands 30% insensitive clays

Enclosure 2